

Enhancing Competency Indicators of Media Literacy in the Digital Era

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With innovations of communication and information technology, followed by an inevitable trend of digital convergence, the definition and types of “media” vary from time to time. Media literacy therefore may have changed its core meaning and theoretical implications, and have been renamed “information literacy”, “digital literacy”, “information technology literacy”, “multimedia literacy”, or “media information literacy”, collectively referred to as “new literacies”, or “multiliteracies”, etc. First, this study is to investigate whether the diversification of media has changed the core meaning and competency of media literacy, and the connotation of media literacy should advance with the times and may be revised. Based on this main inquiry, this study employs document analysis and literature review, as well as adopts the Delphi method to organize a group of college educators teaching media literacy or information literacy for the research purpose of enhancing competency indicators of media literacy in a digital era. This study then conducts a questionnaire survey for college students to discover how they regard

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the importance of “new” competency of media literacy in a digital era. In addition, this study is about to explore the differences between educators and students regarding the importance of those competencies and investigates students’ interests on various competencies at different learning stages. Finally, the study intends to propose sound strategies for promoting “new” media literacy education in colleges in the end.

[**Keywords** : Media literacy, Digital literacy, Media literacy education, Media education, Competency indicator]

1. Significance of Problem

Since 1970s, media literacy education has been considered as one of the civil rights in a civil society to practice democratic rights and civil duties. It is associated with democratic development (Hobbs and Jensen, 2009). The technological advancements in recent years have greatly influenced people’s lives, and education is no exception (Froehlich and Froehlich, 2013). In the digital era, media that were used to obtain, process and convey information in the past, have been transformed from linear communication to hyperlink. Hence, it is necessary to develop competency to process media and information, meaning people must possess literacy to process media and information in order to become competent citizens in the digital society (Simsek and Simsek, 2013). In short, media literacy education in the digital era helps people to practice digital citizenship, thereby constructing an important base of a digital society. This suggests that it is important to cultivate competency of media literacy in the digital era.

With the development of communication technology and trend of digital convergence, new media platforms continuously introduce new ideas. “Media” should thus be re-defined. In the past, mass media referred to newspapers, magazines, radio and TV. In the 21st century, it further includes internet. However, the definitions of the above five media are lacking. With the emergency of innovative communications services such as telecommunication platforms, social media, video games or webcasting, all mobile and internet carriers possess the functions of media. Definition of media thus becomes broader (Leu, Kinzer, Coiro, and Cammack, 2004). Hence, with the changeable forms of media in times, knowledge of understanding media becomes more significant. Among others, the key is media literacy education. Marshall McLuhan stated that media are the extension of people, whose knowledge of the world should

start from media and be accomplished by media education. In other words, when the forms of media become diverse, connotation of media literacy education to approach media should also be changed in order to meet the trend of time. Therefore, scholars argued that traditional media literacy education can no longer be applied to digital era of multiple media (Sheridan and Rowsell, 2010; Masterman, 1997; Lankshear and Knobel, 2003).

Previous studies have shown that digital media development leads to new issues that differ from traditional media or results in new comprehension concept and model. It further requires construction of new core competency (Buckingham, 2003; 2006). Researches have shown that if people obtain information from TV, the internet, or even social media, instead of books or newspapers, as well as when knowledge acquisition from media becomes knowledge processing through media, cultivation of media literacy competency and education content should be changed (Thoman and Jolls, 2004; Walsh, without date; Westby, 2010). Thus, contents and issues of media literacy education should certainly be re-defined and examined. Media literacy education in the digital era should develop more diverse content and issues in order to enhance core competency.

Elizabeth Thoman, the founder of the Center for Media Literacy of U.S. emphasized that in this changeable world, media literacy should be the priority of education implemented in countries around the world. With constant progress of global media and technology, multimedia environment has changed people's comprehension of the world, and it also challenges the fundamental idea of education. Therefore, when people enter the 21st century, countries around the world should treat media literacy as the priority of educational objective, in order to cultivate their citizens' new media literacy competency (Thoman and Jolls, 2004).

According to possible evolution of core implication and theoretical concept of media literacy education and modification, as well as the construction of related core competency indicators, this study aims to explore new implications of media literacy in the digital era and establish media literacy competency indicators that meet the current demands. In addition, this study intends to conduct a questionnaire survey on university students to evaluate the importance of competency indicators of media literacy. Finally, it

discusses the importance levels of new competency indicators based on the survey results.

2. Literature Review

Media literacy refers to the competency to access, comprehend and produce media messages in different kinds of situations; in other words, media literacy can be conceived as audiences' abilities to access, analyze, evaluate and employ various types of media to convey information (Aufderheide, 1993). Moreover, media literacy can also be the capacity to operate, produce meaning of, organize and properly use mass media. It is one of the essential literacies possessed by modern citizens (Lloyd-Kolkin and Tyner, 1991; Hart, 1991). According to definition proposed in the National Leadership Conference on Media Literacy held in the U.S. in 1992, media literacy means that audiences can recognize impact of media, understand message transmission process of mass media, develop strategy to analyze and discuss media messages, and comprehend media information as the base to absorb social culture and daily affairs. Finally, they can enjoy, understand and appreciate media content and be able to access media and express their opinions on quasi-public issues (Aufderheide, 1993; Silverblatt, 1995).

With the development of digital communication technology, some scholars refer to media literacy as digital literacy. For instance, Gilster (1997) argued that there are various literacies related to digital technology, including information collection, evaluation and processing competency and non-linear information searching ability. Since new literacy is various and complicated, he suggested that it can be called "digital literacies" in plural. Lankshear and Knobel (2003; 2012) also proposed terms of "information literacy", "computer literacy", "media literacy", "communication literacy", "visual literacy" and "technology literacy" to refer to "digital literacy", even including "new literacies". However, they referred to "digital literacy" as singular.

As mentioned above, educational implication and competency indicators of media literacy are regulated and modified according to new media development in the digital era. That is to say, media literacy in digital era should establish new forms of cultural and communicative competence in order to respond to the change (Cope and Kalantzis, 2000). Previous studies emphasized that "literacy"

refers to “competency” or “skill”, thus, cultivation of related skills and competency is critical (Buckingham, 2006). Other studies argued that competency is the combination of knowledge, skill and attitude. It is integrated application of knowledge, skill, value, experience, contact and external knowledge resources, and tools to solve problems, present activities or cope with situations (Friesen and Anderson, 2004; Sandberg, 2000). Based on the research purposes, this study defines competency as the important knowledge, ability, action and attitude acquired by students in the course of media literacy. Through the connection between the competence and objectives of media literacy education, it intends to construct new competency indicators of media literacy. Hence, literacy and competency of media literacy in this study have consistent meanings, and refer to knowledge, attitude and action that can be taught, learned and evaluated.

According to the White Paper of Media Literacy Education Policy released by Taiwan’s Ministry of Education in 2002, media literacy means to cultivate the following basic abilities when people perceive media information: (1) to understand media content: 1-1) to understand representation system (media language and rules) of different media; 1-2) to understand types of media and meaning produced by narratives; 1-3) to understand and apply media producing skill and technique; 1-4) to understand connection between technology and media text; (2) to comprehend media representation: 2-1) to recognize relationship between stereotype and power hierarchy of age, gender, race, occupation, class, sexual orientation in media content; 2-2) to compare relationship between media content and situations, characters and events in real life and social reality; 2-3) to interpret meaning and ideology implied in media representation; (3) to reflect on meaning of audience: 3-1) to reflect on individuals’ media behavior; 3-2) to recognize negotiation of meaning between individuals and texts; 3-3) to recognize concept of “audience” in commercial meaning of text; 3-4) to learn main concept of advertising industry: share/rating and social and cultural meanings of advertising; (4) to analyze media organizations: 4-1) to recognize how gate-keeping process of media organizations influences production of texts: 4-2) to review how ownership of media organizations influences selection and combination of texts: 4-3) to recognize difference between public media and commercial media; 4-4) to review impact of information privatization; and (5) to

influence and access of media: 5-1) to recognize meaning of media citizenship; 5-2) practice of access and use of media; 5-3) to distinguish passive media consumers and active media audiences, 5-4) claim of personal portrait right and privacy: 5-5) claim of liberation of public information.

Construction and measurement of competency indicators are important tasks to examine the outcome of media literacy education (Arke and Primack, 2009). The competency indicators of media literacy proposed by Ministry of Education could be dated to ten years ago, and were based on the curriculum of National Compulsory Education, covering junior high and elementary school students. After investigating media literacy and competency of university students, Arke and Primack (2009) argued that although it is difficult to construct media literacy competency indicators, in new the generation of web 2.0, competency indicators to measure media literacy must be updated with the development of new digital media in order to enhance effectiveness and priority of competency indicators. Thus, this study establishes appropriate competency indicators for media literacy education in the digital era.

As there is no academic consensus on the most suitable term for the media literacy in digital era presently, this study uses the term "new media literacy", where "new" refers to media literacy, which differs from new literacies.

3. Research Questions and Methods

The research questions of this study are as follows :

1. What are core competency indicators of new media literacy?
2. How do teachers and students evaluate importance of new media literacy competency indicators?
3. What is the difference between teachers' and students' evaluation of new media literacy competency indicators?

This study conducted two research methods: one is the Delphi method and the other is questionnaire survey. The Delphi method, in essence, is to use the collective opinions of experts to forecast the uncertain event. The process is based on feedback by conducting several rounds of questionnaire in order to make breakthrough to develop goals and predict the future. Now, it has been widely used in researches of policy analysis (Carley, 1986; Hsia, 1999). Simply speaking, the Delphi method is a technique that adopts a series of

(usually four) group questionnaires to obtain people's common views on a topic (Xie, 1978). For a further explanation, for the desired study topic, the Delphi method is used to conduct repeated many times of questionnaire to related scholars, experts and practitioners concerned. Through brainstorming of related personnel in various fields, they develop or coordinate together to a consistency of the views or opinions. In this process, the changes of each survey results will be presented to group members who will participate in its next survey. During the multi-round survey process, experts are allowed to modify or adjust their opinions to get closer to the views of group reaction to obtain the final consensus. It is expected to eventually make breakthroughs for planning goals and the future prediction (Linstone and Turoff, 1975; Carley, 1986; Hsia, 1999; Chou, 1995). Overall, the Delphi method combines the advantages of traditional meetings and questionnaires, and it has anonymity of survey and brainstorming obtainable effects in meetings (Xie, 1978).

With respect to the Delphi group members, the major chosen population is found out from curriculums of study year from 2011 to 2013 on the website of the Ministry of Education, a total of 447 teachers, including 111 professors or teachers of teaching media literacy and 336 teachers of information literacy. Forty Delphi experts are estimated to be selected, and the ratio of teachers to Delphi experts is 11.175 to 1. Hence, the study needs to select 10 experts in media literacy field and 30 experts in information literacy field to build the Delphi group.

Among Delphi sampling teachers on the contact list in study years from 2011 to 2013, 10 out of 111 teachers in media literacy field are chosen to become our Delphi experts (the ratio is one Delphi experts to 11.1 teachers). On the other hand, 31 out of 336 teachers in information literacy field are chosen to become our Delphi experts. After participating invitation, two teachers can't be contacted with continuously. Hence, 29 teachers who have teaching experience in media literacy or information literacy curriculums participate in the Delphi survey group in the end.

The study adopted Google online questionnaire to acquire expert's opinions from the Delphi group. The first round questionnaire was sent out on May 31, 2015, but there were no replies from two group members, so the study finally decided to give up above two samples. As a result, there were total 27 people in the Delphi group. In addition, the result of first round questionnaire

suggest that competency indicators should be added two items: to comprehend, think and create visual image, and to recognize information security and privacy. The total indicators for the second round questionnaire are 27. Three rounds of Delphi questionnaire collection were completed on June, 30th, 2015.

By questionnaire survey, this study collected and explored views of university students in Taiwan toward competence for new media literacy. First, according to geographic areas, types of school, and attribute of courses, it conducted sampling. Subsequently, at the beginning and final of the fall semester of 2015, this study conducted two questionnaire surveys in the selected universities, and invited students who take either course of media literacy or information literacy to evaluate importance of competency indicators and their learning intention. In the survey, the students were asked to treat the course of “new media literacy” as an example to express their views toward new media literacy competency indicators. A total of 1195 students, from 11 universities and 13 courses, responded. The valid samples are shown below:

Table-1 : Statistics of Number of Valid Questionnaires Retrieved

| | Media literacy | Information literacy | Total |
|-----------------------|----------------|----------------------|-------------|
| Beginning of semester | 393 | 246 | 639 |
| Final of semester | 329 | 227 | 556 |
| Total | 722 | 473 | 1195 |

4. Research Findings

This section first discusses new media literacy competency indicators constructed, and then analyzes teachers’ and students’ evaluation of importance of competency indicators and their differences in the importance of indicators.

4.1 New Media Literacy Competency Indicators and Importance Evaluation

First, using various academic databases on the internet, this study screened 364 journal articles or books by 26 keywords, such as digital literacy. After review and classification of 142 competency indicators, this study found some indicators to be too similar. By further systematization, it obtained 35 competency indicators. With

22 competency indicators listed in the Project of Media Literacy Education of the Ministry of Education in 2002, there were a total of 57 indicators. Considering indicators with overlapping concepts, this study conducted the second round of reorganization and acquired 43 competency indicators. According to literature findings, it classified competency into three categories: concept (knowledge), skill (technique) and application (action). Concept refers to basic knowledge of new media literacy; skill is based on audiences' required techniques to process digital information and media content; application means the action to accomplish the goals by social practice. According to three competency categories, this study reorganized the indicators into 31 indexes.

This study purposely included the insight of domestic academia on these competency indicators in order to more precisely respond to findings of related literatures. This study invited five experts and scholars from the fields of media, information and communications technology to participate in focus group, and discuss priority of 31 competency indicators. Experts suggested integrating the indicators into 25 which were items of the first-round questionnaire of Delphi group. After retrieving questionnaires of the first round, based on suggestion of Delphi group, this study added two indicators : "to comprehend, think and create visual image" and "to learn information security and privacy". There were thus 27 competency indicators as items of the second and third rounds of questionnaire.

After this study accomplished three rounds of Delphi group survey, ranking of importance of new media literacy competency indicators is shown below (a high number indicates higher importance): 1) to recognize meanings conveyed by media content and the underlying ideology (4.96); 2) to reflect on individuals' media use behavior (4.96); 3) to recognize the essence of information and technology as learning tool (4.93); 4) to collect and precisely evaluate media content (4.93); 5) to communicate with others and society by communications technology (4.89); 6) to recognize multi-culture and stereotype constructed by media (4.85); 7) to use and reflect on digital technology to solve problems (4.85); 8) to recognize legal issues regarding information and society (4.85); 9) to recognize information security and privacy (4.81); 10) to learn how media messages are produced and constructed (4.78); 11) social participation by media resources (4.74); 12) practice of media supervision (4.74); 13) to recognize duality of public and commercial characteristics of media

(4.67); 14) practice of civil communication right and media access right (4.67); 15) to distinguish differences between real world and virtual space (4.59); 16) to criticize media content (4.59); 17) to learn to share information with others (4.52); 18) to recognize media ethics and laws (4.44); 19) to distinguish media characteristics of different types of technology (4.33); 20) to recognize media ownership and its impact (4.30); 21) to integrate media information and produce the content (4.26); 22) to learn media organization and operation (4.19); 23) to learn to diffuse self-produced media content (4.19); 24) to recognize media policy and regulation (4.11): 25) to analyze and integrate great amount of data (4.07); 26) to skillfully use computer software and hardware (3.96); 27) to comprehend, think and create visual image (3.85). Regarding some items, the scores are the same in 29 experts' responses in 3 rounds of questionnaire. For instance, the most important 4 indicators: 6, 14, 3, and 11. The first two items are the first (4.96) and the latter two are the third (4.93). The following indicators also show the same scores. Interestingly, Indicator 3 is upgraded from No. 13 to No.3. However, Indicator 24 becomes No.13 from No. 4. Investigation result on the importance of competency indicators in three rounds of evaluation of Delphi group is shown below :

Table-2 : The Results of three rounds of Delphi Method Survey

| Item | Competency Indicator | Third Round | Second Round | First Round |
|------|---|-------------|--------------|-------------|
| 6 | To recognize meanings conveyed by media content and the underlying ideology | 4.96 (1) | 4.89 (1) | 4.78 (1) |
| 14 | To reflect on individuals' media use behavior | 4.96 (1) | 4.81 (2) | 4.70 (2) |
| 3 | To recognize the essence of information and technology as learning tool | 4.93 (3) | 4.67 (6) | 4.41 (13) |
| 11 | To collect and precisely evaluate media content | 4.93 (3) | 4.78 (4) | 4.70 (2) |
| 19 | To communicate with others and society by communications technology | 4.89 (5) | 4.78 (4) | 4.52 (9) |
| 7 | To recognize multi-culture and stereotype constructed by media | 4.85 (5) | 4.67 (6) | 4.63 (4) |

| | | | | |
|----|--|-----------|-----------|-----------|
| 18 | To use and reflect on digital technology to solve problems | 4.85 (5) | 4.81 (2) | 4.63 (4) |
| 21 | To recognize legal issues regarding information and society | 4.85 (5) | 4.63 (11) | 4.52 (9) |
| 27 | To recognize information security and privacy | 4.81 (9) | 4.63 (11) | |
| 5 | To learn how media messages are produced and constructed | 4.78 (10) | 4.63 (11) | 4.56 (7) |
| 20 | Social participation by media resources | 4.74 (11) | 4.67 (6) | 4.44 (12) |
| 25 | Practice of media supervision | 4.74 (11) | 4.67 (6) | 4.56 (7) |
| 1 | To recognize duality of public and commercial characteristics of media | 4.67 (13) | 4.63 (11) | 4.52 (9) |
| 24 | Practice of civil communication right and media access right | 4.67 (13) | 4.67 (6) | 4.63 (4) |
| 9 | To distinguish differences between real world and virtual space | 4.59 (15) | 4.41 (17) | 4.15 (20) |
| 13 | To criticize media content | 4.59 (15) | 4.52 (15) | 4.37 (14) |
| 15 | To learn to share information with others | 4.52 (17) | 4.44 (16) | 4.15 (20) |
| 23 | To recognize media ethics and laws | 4.44 (18) | 4.33 (18) | 4.30 (16) |
| 8 | To distinguish media characteristics of different types of technology | 4.33 (19) | 4.30 (19) | 4.33 (15) |
| 4 | To recognize media ownership and its impact | 4.30 (20) | 4.07 (23) | 4.22 (18) |
| 16 | To integrate media information and produce the content | 4.26 (21) | 4.15 (20) | 4.19 (19) |
| 2 | To learn media organization and operation | 4.19 (22) | 4.11 (21) | 4.04 (23) |

| | | | | |
|----|--|-----------|-----------|-----------|
| 17 | To learn to diffuse self-produced media content | 4.19 (22) | 4.11 (21) | 4.26 (17) |
| 22 | To recognize media policy and regulation | 4.11 (24) | 3.96 (25) | 4.11 (22) |
| 12 | To analyze and integrate great amount of data | 4.07 (25) | 4.04 (24) | 4.04 (23) |
| 10 | To skillfully use computer software and hardware | 3.96 (26) | 3.67 (27) | 3.67 (25) |
| 26 | To comprehend, think and create visual image | 3.85 (27) | 3.74 (26) | |

PS : () means rankings in each round

4.2 Comparison between Students’ and Teachers’ Evaluation of Importance of Competency Indicators

This section discusses students’ evaluation results regarding the importance of competency indicators and the differences with teachers’ evaluation. First, according to survey result on university students, the importance ranking of competency indicators is shown as follows: 1) to recognize information security and privacy (4.39); 2) practice of civil communication right and media access right (4.28); 3) to collect and precisely evaluate media content (4.27); 4) to use and reflect on digital technology to solve problems (4.27); 5) to recognize meanings conveyed by media content and the underlying ideology (4.24); 6) to communicate with others and society by communications technology (4.24); 7) to distinguish differences between real world and virtual space (4.24); 8) to recognize media ownership and its impact (4.23); 9) to reflect on individuals’ media use behavior (4.22); 10) to recognize the essence of information and technology as learning tool (4.21); 11) social participation by media resources (4.2); 12) to recognize duality of public and commercial characteristics of media (4.2); 13) practice of media supervision (4.19); 14) to recognize media ethics and laws (4.18); 15) to learn to diffuse self-produced media content (4.17); 16) to recognize legal issues regarding information and society (4.16); 17) to learn to share information with others (4.16); 18) to learn how media information is produced and constructed (4.16); 19) to analyze and integrate great amount of data (4.16); 20) to integrate media information and produce content (4.15); 21) to learn media organization and operation (4.13); 22) to recognize multi-culture and stereotype constructed by media (4.13); 23) to

skillfully use computer software and hardware (4.13); 24) to distinguish media characteristics of different types of technology (4.1); 25) to criticize media content (4.06); 26) to learn media policy and regulation (4.04); 27) to comprehend, think and create visual images (4.02). The results showed that the importance ranking of the indicators with keywords such as information, digital and technology is high, while that of indicators with keyword of media is relatively low. The cause of the phenomenon can be further explored.

Secondly, after comparing students' and teachers' evaluation result, this study realizes that students and teachers are extremely different on Indicator 3, 5, 6, 7, 11, 13, 14, 18, 19, 20, 21, 25 and 27 ($p < 0.001$). Regarding Indicator 18 and 27, they are more important for students than teachers. As to Indicator 11, 19 and 20, they are equally important for teachers and students. As to the rest indicators, they are more important for teachers than students. In addition, students and teachers have common consensus on Indicator 2, 4, 8, 10, 12, 16, 17, 22 and 26. It means that for them, these indicators are important in course of new media literacy. Comparison result between teachers and students is shown as follows :

Table-3 : Comparison between Students' and Teachers' Evaluation

| Item | Competency Indicator | Student | Teacher | T |
|------|---|-----------|-----------|------------|
| 1 | To recognize duality of public and commercial characteristics of media | 4.20 (11) | 4.67 (13) | -2.854** |
| 2 | To learn media organization and operation | 4.13 (21) | 4.19 (22) | -0.316 |
| 3 | To recognize the essence of information & technology as learning tool | 4.21 (10) | 4.93 (3) | -11.099*** |
| 4 | To recognize media ownership and its impact | 4.23 (8) | 4.30 (20) | -0.425 |
| 5 | To learn how media messages are produced and constructed | 4.16 (16) | 4.78 (10) | -5.941*** |
| 6 | To recognize meanings conveyed by media content and the underlying ideology | 4.24 (5) | 4.96 (1) | -13.668*** |
| 7 | To recognize multi-culture and stereotype constructed by media | 4.13 (21) | 4.85 (6) | -9.019*** |

| | | | | |
|----|---|-----------|-----------|-----------|
| 8 | To distinguish media characteristics of different types of technology | 4.10 (24) | 4.33 (19) | -2.025 |
| 9 | To distinguish differences between real world and virtual space | 4.24 (5) | 4.59 (15) | -2.766** |
| 10 | To skillfully use computer software and hardware | 4.13 (21) | 3.96 (26) | 1.143 |
| 11 | To collect and precisely evaluate media content | 4.27 (3) | 4.93 (3) | -10.26*** |
| 12 | To analyze and integrate great amount of data | 4.16 (16) | 4.07 (25) | 0.608 |
| 13 | To criticize media content | 4.06 (25) | 4.59 (15) | -5.041*** |
| 14 | To reflect on individuals' media use behavior | 4.22 (9) | 4.96 (1) | 13.937*** |
| 15 | To learn to share information with others | 4.16 (16) | 4.52 (17) | -3.384** |
| 16 | To integrate media information and produce the content | 4.15 (20) | 4.26 (21) | -0.945 |
| 17 | To learn to diffuse self-produced media content | 4.17 (15) | 4.19 (22) | -0.158 |
| 18 | To use and reflect on digital technology to solve problems | 4.27 (3) | 4.85 (6) | -7.415*** |
| 19 | To communicate with others and society by communications technology | 4.24 (5) | 4.89 (5) | -8.95*** |
| 20 | Social participation by media resources | 4.20 (11) | 4.74 (11) | -5.754*** |
| 21 | To recognize legal issues regarding information and society | 4.16 (16) | 4.85 (6) | -8.605*** |
| 22 | To recognize media policy and regulation | 4.04 (26) | 4.11 (24) | -0.590 |
| 23 | To recognize media ethics and laws | 4.18(14) | 4.44(18) | -2.551* |
| 24 | Practice of civil communication right and media access right | 4.28(2) | 4.67(13) | -3.45** |

| | | | | |
|----|---|----------|----------|-----------|
| 25 | Practice of media supervision | 4.19(13) | 4.74(11) | -5.845*** |
| 26 | To comprehend, think and create visual image | 4.02(27) | 3.85(27) | 1.226 |
| 27 | To recognize information security and privacy | 4.39(1) | 4.82(9) | -4.99*** |

PS : () means rankings

5. Conclusion and Discussion

Media in traditional media literacy refer to newspapers, magazines, radio and TV. However, when internet and various information technology and telecommunication platforms become media for people to obtain information, media in media literacy refer to multiple concepts. Therefore, competency cultivated by media literacy education in the digital era should be adjusted or intensified. In addition, competency indicators for courses of new media literacy should also be modified in order to meet the current demands of citizens. These are the main issues of this study.

This study invited 27 teachers who taught or had taught the course of media literacy or information literacy to form Delphi groups, in order to evaluate the importance and priority of competency indicators. In three rounds of survey, the highest score is 4.96 and the lowest score is 3.85. There is only one gap of level in 27 indicators. It shows that there is common consensus between literatures and experts' opinions regarding priority of competency indicators of new media literacy. The findings can serve as reference for teachers in different fields (such as mass communication department or general education program) on different student backgrounds (such as general university or technology university) when designing different themes of courses (such as media literacy or information literacy) upon importance and priority of competency indicators. Hence, appropriate indicators can be selected to meet the teaching objectives. It is the main contribution of this study.

Secondly, this study conducted a questionnaire survey on the new media literacy competency indicators of university students who took the course of media literacy or information literacy in Taiwan. The survey explored their opinions on the importance of new competency indicators, and compared differences between students' and teachers' opinions to allow teachers to recognize the needs of students in the digital era. By recognizing learners'

opinions, teachers can design contents and issues of new courses that better meet learners' needs. It puts the constructivist teaching strategy into practice based on learners' needs. This is the second contribution of this study.

Finally, in order to avoid the misunderstanding of teachers and students participating this study as perceiving the survey as an examination of the course achievements, this study did not conduct media literacy competency test on university students. However, it is suggested that teachers who design courses of (new) media literacy in the future can examine students' learning outcome by these new competency indicators. The findings of this study not only provide feedbacks for course instruction, but also give directions to research projects on examining and modifying competency indicators proposed by this study to develop more appropriate competency indicators of media literacy education. This is the objective after the implementation of this project.

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